

In the Claims:

1. (Currently amended) A cellular wheel sluice constructed as an axial ~~blow-through~~ blow-through sluice, particularly for dosing ~~secondary fuels,~~ a particulate material, comprising a supply chute (2) adapted to feed the particulate material and therebelow a cellular wheel (4) that is provided with radial cellular wheel webs (3) on a cellular wheel core (9) and that is arranged to rotate about a horizontal axis in a housing, which housing has a blow-in hole (10) and a blow-out hole (11) arranged in the housing below the horizontal axis of the cellular wheel within a rotational area of the cellular wheel webs (3) and positioned opposite each other in vertical side walls of the housing, characterized in that an injection nozzle (15) is integrated in the area of the blow-in hole (10), said injection nozzle being adapted to blow transport air successively into plural dosing chambers (5) respectively formed between successive neighboring ones of the cellular wheel webs (3), and in that the cellular wheel webs (3) are provided with gap seals (12) that are made of a material as hard as a metal and are positioned at radial outer ends of the cellular wheel webs with a radial spacing gap between each one of the gap seals and a cylindrical wall of the housing around the cellular wheel wherein radially outer edges of the gap seals are configured as respective shear-cutting edges that are oriented facing circumferentially forward in a rotation direction of the

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27 cellular wheel, and further comprising a counter-cutting
28 member with a counter-cutting edge arranged in the supply
29 chute at a chute-bounding side wall thereof that is
30 circumferentially downstream with respect to the rotation
31 direction of the cellular wheel, wherein the
32 counter-cutting edge is positioned relative to the
33 shear-cutting edges and oriented circumferentially opposite
34 the shear-cutting edges so as to cooperate with the
35 shear-cutting edges to shear-cut particles of the
36 particulate material between the counter-cutting edge and
37 the shear-cutting edges.

- 1 2. (Previously presented) The cellular wheel sluice of claim
2 1, characterized in that the injection nozzle (15) is
3 set-in coaxially and inwardly in a blow-in pipe socket (16)
4 secured to the blow-in hole (10), said injection nozzle
5 causing a reduction of the blow-in cross-section in the
6 area of the blow-in hole (10) relative to the blow-in pipe
7 cross-section.

Claims 3 to 9 (Canceled).

- 1 10. (Previously presented) The cellular wheel sluice of claim
2 1, characterized in that the blow-in hole (10) and the
3 blow-out hole (11) are positioned axially opposite each
4 other in the vertical side walls of the housing, and in

5 that a cross-sectional area of the blow-out hole (11) has
6 about the cross-section of one of the dosing chambers (5).

1 11. (Previously presented) The cellular wheel sluice of claim
2 1, characterized in that the injection nozzle (15) is
3 constructed as a pipe shape and comprises a nozzle opening
4 (24) having a diameter corresponding, at the most, to one
5 half of the median diameter of one of the dosing chambers.

1 12. (Currently amended) The cellular wheel sluice of claim 1,
2 characterized in that the gap seals with the shear-cutting
3 edges are constructed as separate ~~cutting edges (12)~~
4 components that are made of a spring steel or other low
5 wear steel alloy and that ~~[[they]]~~ are exchangeably secured
6 to the cellular wheel webs (3).

1 13. (Currently amended) The cellular wheel sluice of ~~claim 12,~~
2 claim 1, characterized in that ~~a counter cutting blade (13)~~
3 is provided the counter-cutting member is a counter-cutting
4 blade arranged in the supply chute (2) parallel to the
5 cutting shear-cutting edges (12) which rotatingly pass by
6 the ~~counter cutting blade (13) with a small spacing~~
7 ~~therebetween and~~ counter-cutting edge in an opposing
8 alignment.

1 14. (Previously presented) The cellular wheel sluice of claim
2 1, characterized in that the housing (1) is provided with

a wear bushing (21) on the cylindrical wall and is provided with a wear lining (14) on inner surfaces of the vertical side walls, and in that the wear bushing and the wear lining are made of a spring steel material or a low wear steel alloy.

15. (Currently amended) The cellular wheel sluice of ~~claim 12,~~
claim 1, characterized in that the cellular wheel webs (3) are secured to the cellular wheel core (9) so that the cutting shear-cutting edges (12) extend at a circumferentially skewed slant to the horizontal axis or with a slight helical shape about the horizontal axis.

16. (Currently amended) The cellular wheel sluice of ~~claim 13,~~
claim 1, characterized in that the ~~counter-cutting blade~~
~~(13)~~ counter-cutting edge is arranged at a circumferentially skewed slant to the horizontal axis and the cellular wheel webs are straight and parallel to the horizontal axis.

17. (Previously presented) The cellular wheel sluice of claim 1, wherein said radial spacing gap has a radial measure from 0.2 mm to 0.5 mm.

18. (Previously presented) The cellular wheel sluice of claim 1, wherein each one of the dosing chambers has a substantially trapezoidal, annular sector cross-sectional

4 shape, and the blow-out hole has a substantially
5 trapezoidal, annular sector opening shape.

1 19. (Previously presented) The cellular wheel sluice of claim
2 18, wherein the opening shape of the blow-out hole has an
3 area that approximately corresponds to an area of the
4 cross-sectional shape of a respective one of the dosing
5 chambers.

1 20. (Currently amended) [[A]] An axial blow-through cellular
2 wheel feeder for feeding particulate bulk solid material,
3 comprising:

4 a housing that comprises a cylindrical wall extending
5 concentrically about a horizontal axis, and planar vertical
6 side walls at axial ends of said cylindrical wall, wherein
7 said cylindrical wall and said side walls bound a
8 cylindrical space in said housing;

9 a bulk solid material supply chute that is adapted to
10 feed the particulate bulk solid material and that
11 communicates into said cylindrical space in said housing
12 through a supply opening in said cylindrical wall;

13 a cellular wheel that comprises plural cellular wheel
14 webs extending radially outwardly from a central wheel hub
15 that is supported rotatably about said horizontal axis in
16 said cylindrical space in said housing, and respective gap
17 seals arranged respectively at radially outer edges of said
18 cellular wheel webs, wherein respective dosing chambers are

19 respectively formed and bounded radially between said
20 central wheel hub and said cylindrical wall and
21 circumferentially between respective successive neighboring
22 pairs of said cellular wheel webs, wherein said gap seals
23 are made of a hard material that has a hardness equal to
24 that of a metal, [[and]] wherein said gap seals are
25 arranged to leave a radial spacing gap between each one of
26 said gap seals and said cylindrical wall, and wherein
27 respective radially outer edges of said gap seals are
28 configured as respective shear-cutting edges that are
29 oriented facing circumferentially forward in a rotation
30 direction of said cellular wheel about said horizontal
31 axis;

32 a counter-cutting member with a counter-cutting edge
33 arranged in said supply chute adjacent to said supply
34 opening at a chute-bounding side wall of said supply chute
35 that is circumferentially downstream with respect to said
36 rotation direction of said cellular wheel about said
37 horizontal axis, wherein said counter-cutting edge is
38 positioned relative to said shear-cutting edges and
39 oriented circumferentially opposite said shear-cutting
40 edges so as to cooperate with said shear-cutting edges to
41 shear-cut particles of the particulate bulk solid material
42 between said counter-cutting edge and said shear-cutting
43 edges;

44 a blow-in hole that is provided below said horizontal
45 axis in a first one of said vertical side walls;

a blow-out hole that is provided below said horizontal axis and axially across from said blow-in hole in a second one of said vertical side walls; and

an injector nozzle that is mounted to said housing at said blow-in hole and that is positioned and adapted to blow a stream of transport gas through said blow-in hole, a respective one of said dosing chambers in communication with said blow-in hole, and said blow-out hole in a blowing transport direction parallel to said horizontal axis so as to be adapted to transport the particulate bulk solid material out of said respective dosing chamber through said blow-out hole in said transport direction.

21. (Previously presented) The blow-through cellular wheel feeder according to claim 20, wherein said radial spacing gap has a radial measure from 0.2 mm to 0.5 mm.

22. (Previously presented) The blow-through cellular wheel feeder according to claim 20, wherein each one of said dosing chambers has a substantially trapezoidal, annular sector cross-sectional shape, and said blow-out hole has a substantially trapezoidal, annular sector opening shape.

23. (Previously presented) The blow-through cellular wheel feeder according to claim 22, wherein said opening shape of said blow-out hole has an area that approximately

corresponds to an area of said cross-sectional shape of a
respective one of said dosing chambers.

Claim 24 (Canceled).

25. (Currently amended) The blow-through cellular wheel feeder according to ~~claim 24,~~ claim 20, further comprising ~~a counter-cutting member with a counter-cutting edge (13) arranged in said supply chute at a chute-bounding side wall thereof that is circumferentially downstream with respect to a rotation direction of said cellular wheel about said horizontal axis, and a deflector scraper [(20)] protruding from said chute-bounding side wall into said supply chute above said counter-cutting~~ counter-cutting member so as to be adapted to deflect away from said ~~counter-cutting~~ counter-cutting member the particulate bulk solid material fed through said supply chute, ~~wherein said counter-cutting edge is positioned along a circumference of said cutting knife edges and oriented circumferentially opposite said cutting knife edges so as to cooperate with said cutting knife edges for shear-cutting.~~ chute.

26. (Previously presented) The blow-through cellular wheel feeder according to claim 20, further comprising a cylindrical wear layer on an inner surface of said cylindrical wall and a respective planar wear layer on respective inner surfaces of said vertical side walls of

6 said housing, wherein said wear layers are composed of a
7 wear resistant steel alloy or a spring steel.

1 27. (Previously presented) The blow-through cellular wheel
2 feeder according to claim 20, wherein said cellular wheel
3 webs and said gap seals have a helical shape about said
4 horizontal axis.

1 28. (Previously presented) The blow-through cellular wheel
2 feeder according to claim 20, wherein said cellular wheel
3 webs and said gap seals each respectively extend at a
4 circumferentially skewed slant relative to said horizontal
5 axis.